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ABSTRACT

A study traced changes in preferred occupation over a period of 5 years, from Year 9 (approximately age 14) to the first year beyond high school, for over 3,000 Australian students in a sample of 22 government schools. Reasons for changes in preference were probed in questionnaires administered annually. Interviews of a subsample of students and their parents were conducted during Year 10. Questionnaires were completed by a larger sample of about 600 parents. Analyses of reasons given for changed preferences showed that most commonly the reasons were changes in interests and experiences during work placements or "career" lessons. The important "barriers" in Gottfredson's scheme (1981), gender and social status, were rated among the 5 lowest in importance from the list of 15 reasons supplied. Perceptions of their own abilities were, however, ranked among the top five reasons by the students and had the strongest influence on projected compromises during Year 12. With increasing age, respondents were increasingly more likely to compromise by choosing a related course or job at a lower status level than to change field. Males were much more likely to compromise within gender-stereotyped boundaries than females. Sources of questionnaire items and items used to probe reasons for changes in preferred occupations are appended. (Contains 17 references and 8 data tables.) (YLB)

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PERCEPTIONS OF BARRIERS TO CAREER CHOICE: DO THEY LEAD TO COMPROMISE?

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PERCEPTIONS OF BARRIERS TO CAREER CHOICE: DO THEY LEAD TO COMPROMISE?

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ABSTRACT

This study, of which the present paper reports only a small part, traced changes in preferred occupation over a period of five years, from Year 9 (approximately age 14) to the first year beyond high school, for over 3000 Australian students in a sample of 22 government schools. Reasons for changes in preference were probed in questionnaires administered annually. Interviews of a subsample of students and their parents were conducted during Year 10. Questionnaires were completed by a larger sample of about 600 parents.

Analyses of the reasons given for changed preferences showed that most commonly the reasons were changes in interests and experiences during work placements or 'careers' lessons. The important 'barriers' in Gottfredson's scheme, gender and social status, were rated among the five lowest in importance from the list of 15 reasons supplied. Perceptions of their own abilities were, however, ranked in the highest five reasons by the students and had the strongest influence on projected compromises during Year 12. With increasing age, respondents were increasingly more likely to compromise by choosing a related course or job at a lower status level than to change field. Males were much more likely to compromise within gender-stereotyped boundaries than females.

Theoretical Framework

Theories focusing on the importance of contextual constraints and compromises in occupational choice emerged with the relatively high unemployment rates experienced by Western countries in the 1980's. Psychological aspects such as developing and implementing one's self concept through choice of an occupation, the focus of earlier influential theories, are ideals to which fewer people can aspire when there are many more job seekers than there are jobs available. Two closely corresponding theories, one developed in Australia by Poole (1985), the other in the USA by Linda Gottfredson (1981), attempted to integrate both psychological and sociological aspects of career choice. These theories still give a key role to self concept development, but place substantial emphasis on the contextual factors which impinge on, or constrain, that development.

Poole's theory of Choice in the Adolescent Life Course (CALC) proposes that adolescents assess their personal possibilities in terms of what is relevant and 'appropriate' for them given their perceptions of constraints, form constructions or 'schemas of self' from these assessments, and on the basis of these constructions make

choices (e.g. curriculum choices) which influence the pathways their future lives might take.

Gottfredson postulates a system in which occupational preferences are the result of developing self-perceptions and occupational images. She argues that children in the early primary years first hold preferences based on sex-type because of its more concrete nature. With increasing maturity (upper primary, early secondary years) preferences also take into account the less concrete and observable aspects such as socioeconomic status, and later (usually during adolescence) their own abilities, interests and values, as their self-concepts are formed. In addition, Gottfredson proposes that this circumscription process whereby the sex-type, prestige and then interest dimensions shape aspirations, is reversed when compromise becomes necessary. That is, as perceptions of job accessibility exert an influence, psychological characteristics such as interests and values will be compromised ahead of status and finally gender considerations.

The need for a greater understanding of the compromise process in career decision making has been acknowledged for many years (Ginzberg, Ginsberg, Axelrad, and Herma, 1951; Super, 1953). Gottfredson's inclusion of propositions concerning compromise and constraints was therefore welcome (see for instance, Pryor and Taylor, 1989). Since the publication of her article a small number of studies has focused on the compromise aspect of her theory, although little has appeared in the literature in the last three or four years. In general the results of these studies indicate that the compromise process may be considerably more complex than proposed by Gottfredson.

In contrast with Gottfredson's proposal that interests would tend to be sacrificed before status of occupation and that sex type is the least likely to be changed, the results of a number of studies indicated that interests were less likely to be compromised than either of the other two dimensions. One such study was that carried out by Pryor and Taylor (1986). These researchers used 'vignettes' consisting of hypothetical career compromise choice situations in which one factor at a time was systematically varied. Their sample (N=256) consisted of high school students, college students and vocational counselling clients ranging in age from 13 to 52 years with a mean age of 18.9 years (SD=7.1).

Similar results were obtained by Hesketh, Durant and Pryor (1990) using a policy-capturing method and Hesketh, Elmslie and Kaldor (1990) who used fuzzy rating scales. In the former study 37 participants, ranging in age from 15 to 42 years and with a range of educational and social class backgrounds, were asked to rate the attractiveness of 27 hypothetical jobs with varying levels of occupational interests, sex type and prestige level in situations where jobs were easy to obtain and when jobs were

hard to get. Interests were found to be more important for both the compromise and non-compromise situations. In the study by Hesketh, Elmslie and Kaldor, the participants were asked to complete a paired comparisons exercise and indicate directly the importance of the three factors in making their decision. Two samples were involved. One consisted of 73 volunteers (with ages ranging from 15 to 53 years, mean age 29) most of whom were experiencing difficulties in obtaining a job. Ninety Year 11 students with varying social class backgrounds comprised the second sample.

The apparent complexity of the compromise process was illustrated in research carried out by Taylor and Pryor (1985) and Holt (1989). Taylor and Pryor looked at the planned compromises of 287 final year technical students for entry into tertiary education courses, by obtaining their *Vocational Preference Inventory* scores, preferred tertiary course and alternative choice of action if their preferred course was not possible. A number of compromise strategies were identified. One such strategy was to repeat the year, which the researchers called 'a refusal to compromise'. Other strategies included choosing a course in the same interest area but leading to a lower level prestige occupation, and entering an occupation in the administration/commercial field. Holt (1989) used a forced choice procedure and a card sort method to compare the compromise decisions of two groups with different interest orientations. Results indicated that while 'Realistic' types (represented by nine female and 11 male engineering undergraduates) were more concerned with prestige level than field of interest, the opposite was more likely for the 'Social' types (represented by 11 female and 5 male social work undergraduates). The interest fields and personality types used by Holt were derived from the six-category scheme of Holland (1985). According to this scheme, the category pair of Realistic–Social is one of the three pairs which would be expected to be most different from each other in their preferences for occupational (and other) activities. While Holt's study was limited to two of the six types and only two occupations within the types, it does appear to lend further confirmation to the complexity of the compromise process.

Some Australian research by Shears, as reported by Taylor (1986), is of some relevance in the present context. Although the study was not designed to investigate the compromise process *per se*, the results provide some evidence of differences in stability of choice between Holland types. The study was part of the Melbourne Careers Project, in which a sample of Year 10 students was followed over three years. Comparison of results from the *Vocational Preference Inventory* at Year 10 with the *Self-Directed Search* a year later indicated that the Realistic, Investigative, Artistic and Social types were the most stable, and that change was less likely in those Holland categories in which the predominant sex was the same as the respondent.

Harmon (1989) undertook a longitudinal study of changes in career aspirations, focusing on women only. Her aim was not so much to trace changes in the aspirations of the same individuals over time (an aim of the present study) but to assess societal changes through examining similar constructs (extent of traditionality in career aspirations) in two analogous cohorts separated in time by 15 years (from 1968 to 1983). Her work is cited here because in some aspects the constructs studied and the methodology were similar. A relevant finding for the present research is that the first cohort differed in terms of the SES level of their career aspirations and attainments with time, but not in the level of traditionality of these. The women had 'lowered their sights regarding the socioeconomic status of their careers over time' (p. 55). The 1983 cohort differed from the 1968 cohort in traditionality of aspirations, exhibiting a greater tendency to aspire to male-dominated career areas.

Data sources

Twenty-two government secondary schools in New South Wales (the most populous state in Australia with just over 5 million people) were selected on a judgement basis to be as representative as possible of schools from four of the ten education regions which span the state. Two regions were from metropolitan Sydney, one was semi-urban and the other was rural. As many as possible of the students who were in Year 9 (the third year of high school) in 1987 were followed for the next five years. There was also a cross-sectional component to the study in that students from Years 10 and 11 in the 22 schools responded to the questionnaires used in 1987. (At that stage it was not certain that the longitudinal aspect of the research would be able to proceed.) Over 3000 students were in the Year 9 group for the longitudinal study and almost 7000, including these Year 9 students, were involved in the cross-sectional aspect.

Instruments and procedures

In the first year of the research the cross-sectional sample responded to a questionnaire entitled 'School and You' in which information was sought about their educational experiences and plans, attitudes to school, and home background. They also completed, on different occasions, tests in Reading Comprehension and Mathematics and a questionnaire focusing on occupational aspirations, career plans and other vocationally relevant variables. This second questionnaire was entitled 'School, Work and Career'. Over 3000 of the Year 9 longitudinal sample completed 'School and You' and approximately 2700 completed 'School, Work and Career'.

In each of the next three years the longitudinal sample who were still at school completed questionnaires about their educational experiences and plans and their

attitudes to school and learning. Each year the students were asked for any changes in their occupational preferences and reasons for these changes, as well as for projections of factors which might act as barriers to their career development and choice. Data from statewide tests in English and Mathematics were collected while the students were in Year 10 and from the statewide assessments in most subject areas at the end of secondary school (Year 12). Attempts were made, through mailed questionnaires, to reach students who dropped out of school after Year 10 or Year 11. About half of these questionnaires were completed and returned. For those students who had stayed at school until the end of Year 12, information about post-school destinations was collected via a questionnaire mailed during April of the following year. This was about five months after they had left school and far enough into the academic year for their tertiary education program to have stabilised.

A smaller group of four schools (two metropolitan, one semi-urban and one in a rural area) was used for more detailed research into parents' and students' attitudes and plans. Both questionnaires and individual interviews were used for this component of the study.

Clusters of variables

Initial year

From the School and You questionnaire, student background variables and general variables about the student in relation to his or her schooling were obtained. These included socioeconomic status, degree of non-English speaking background, gender, school experiences such as subject/course preferences, satisfaction with school and their own achievement, educational plans, approaches to learning, and post-school destinations as these became relevant. School factors assessed included enrolment size, school location, curriculum breadth and subject/course availability.

The School Work and Career questionnaire was more specific, focusing on factors relevant to occupational interests, aspirations and choices. All variables included in this questionnaire had been proposed by theorists as having some bearing on career development, aspirations or choice, and had also been substantiated empirically. They included psychological factors such as occupational interests (items from the Australian adaptation of the *Self-Directed Search*); self-efficacy ratings in the six Holland areas (also from the SDS) as well as in English, Mathematics and school achievement overall; career development aspects such as extent of planning and extent of information seeking about careers; career salience; career indecision; generalised locus of control; educational self-direction; and a range of variables associated with current and previous career aspirations and reasons for changes in these. A list of the sources for

these items in the questionnaire is given in the Appendix. In addition, the students' perceptions of their parents' expectations for their futures were gathered.

Second year

The first year's students, now in Year 10, were again asked about their educational and occupational plans, and also about their approaches to learning. At this stage, 87% of the 1987 Year 9 sample responded to the follow-up questionnaire.

In the 'focus panel' (FP) of four schools which had been selected for more detailed investigation, interviews were conducted individually (at school) with a subsample of 20 or so students from each of these schools. Individual interviews, in their homes, were also conducted with a group of about 80 parents. These were intended to be the parents of the students interviewed, but substitutions of students for selected students who were absent and substitutions of parents for those who could not be contacted or who did not wish to be interviewed meant that only about 70% overlap between the student and parent interviewees was achieved.

In addition, the remaining parents from the FP schools and the parents of 15 randomly selected students from each of the other 18 schools were sent a mailed questionnaire. From about 570 parents who were sent questionnaires, almost 400 responses were received.

The parent questionnaire, parent interview and student interview all included questions about the student's educational and occupational plans, but the underlying focus was on indications of stereotyped attitudes, particularly gender-based stereotyping, in an attempt to gauge whether this is recognised or seen as a strongly-contributing factor in career choice. The parent interview was based on that used by Kelly (e.g. 1982) in her work on the Girls Into Science and Technology (GIST) project, with her permission. This interview, and the parent questionnaire, probed the parents' attitudes to and practices concerning a range of aspects of gender roles (e.g. the students' reading habits and other hobbies; who helped the students with Maths and English homework; who helped parents with what domestic chores) as well as their aspirations for their children.

Third year

A further School and You questionnaire regarding attitudes to school and educational and occupational plans was answered at school by the sample of students who were by now in Year 11. Of those who provided similar data in the second year, 86% were again involved. Students in the FP schools completed an additional questionnaire about their school experiences and their perceptions of these in relation to future aspirations. The sample students who had left school at the end of or during Year 10, when they would have reached the age at which it is no longer compulsory to attend school in Australia,

were sent a brief questionnaire concerning their activities since leaving school. A response rate of just over 50% was obtained.

Fourth year

By now most of the sample students who were still at school had reached Year 12, the final year of secondary schooling. About 1200 of the original 3000 students responded to a questionnaire on their school experiences and educational plans. Students in the FP schools answered a brief supplementary questionnaire focusing on reasons for changes in preferences and plans. Once again, a response rate of more than 80% of the previous year's respondents was achieved. Students who had left school during or at the end of either Year 10 or Year 11 were sent a questionnaire by mail to gather information about their work- or study-related experiences since leaving school. Just under 50% of these students returned useable responses.

Fifth year

Only those students who completed Year 12 the previous year were contacted in the fifth year. About two thirds of these students completed a brief questionnaire in April of that year to report on whether they had been successful in obtaining a job or in entering a post-secondary educational course. Most of the respondents also completed a second brief questionnaire about three months later, which sought information about and reasons for any changes or compromises they had made in their career plans.

From this wealth of data, only the variables with a bearing on career aspirations and reasons for any changes in preferences and plans over time are addressed in this paper.

Constraints, compromises and associated factors

From the framework of Gottfredson's theory, the most relevant independent variables are gender (e.g. stereotyped perceptions of educational programs and/or occupations plus the student's sex); status (e.g. prestige level of educational paths and/or occupations aspired to as well as the student's own SES and ethnic background); and psychological factors such as the student's interest field(s), perceived abilities and value placed on having a career.

Given the factors emphasised by Gottfredson, all the data on occupational aspirations, preferences and compromises were coded in terms of interest field, prestige and sex balance.

Holland's RIASEC category system was used to assign three-letter codes expressing interest fields as determined by the Australian version of the *Occupations Finder* which accompanies the *Self-Directed Search* (Lokan 1988).

The prestige dimension was coded according to the 6-point ANU (Australian National University) scale which has been widely used in Australian research for many years (Broom, Duncan-Jones, Jones and McDonnell, 1977) -- except that in the present study the code '6' was assigned to the high end of the scale and '1' to the low end. The six categories are professional, semi-professional and managerial, clerical, skilled trades, semi-skilled and unskilled.

Coding of the 'sex balance' or sex-type variable was based on the percentage of males in a particular occupation as determined by data contained in the 1981 Australian Census. (A similar approach was used by Harmon in her longitudinal study cited earlier.) Increasing proportions of males were represented by the codes from one to eight as follows: '1' (10 per cent or less), '2' (10.1 to 20 per cent), '3' (20.1 to 35 per cent), '4' (35.1 to 65 per cent), '5' (65.1 to 80 per cent), '6' (80.1 to 90 per cent), '7' (90.1 to 95 per cent) and '8' (95.1 to 100 per cent). For some analyses these categories were collapsed into three, representing female-dominated (0 to 35 per cent males), neutral (35.1 to 80 per cent males) and male-dominated (80.1 to 100 per cent males). Not all occupations could be sex-typed due to the census data being insufficiently specific.

For the students, coding of most characteristics was self-evident. Ethnic background, an exception to this, was determined from the students' responses to questions concerning their own and their parents' country(ies) of birth. A three-point scale reflecting degree of non-English speaking background was constructed according to whether both parents were born in an English speaking country, whether one parent was born in a non-English speaking country and whether both parents and/or the student were born in a non-English speaking country. This variable was included because several research studies in Australia have found that immigrant parents have higher aspirations for their children than do Australians of longer standing.

All scales included in the various questionnaires were scored, with Likert-type responses reversed as necessary.

Results

Stability of key factors in changed preferred occupation

Table 1, which is based on the cross-sectional data, shows cross-tabulations of stability of interest field (first-letter Holland code), prestige level and sex balance (three categories) for preferred occupation as stated in the initial year of the study, compared with the corresponding variable pertaining to the immediately previous preference. These variables, of course, each mask other aspects of the actual jobs aspired to — in that the variables are somewhat interrelated, each can reveal partial information about the other variables. For a more complete picture the actual jobs preferred over time

need to be followed. For this purpose, the actual jobs cited by students in the interview sample were entered into a computer file. Among this group there were some apparently bizarre changes, for example hairdresser to merchant banker, air hostess to doctor, accountant to electronic engineer. In each of these cases, however, the student had become aware of wider possibilities through personal contacts, who are often a powerful influence on career plans of students at this stage of their education. As Part A of the table shows, even though the overall distribution of first-letter interest categories remained similar, substantial movement occurred in this variable between present and immediately past preferred occupation. Whether the movement occurred mainly between adjacent categories in the list, as Holland (1985) would expect, warrants further investigation. Space does not allow for more detailed tracing of such changes to be reported here.

The SES levels of present and immediately past preferred occupations are tabulated in Part B . Again, there appears to be substantial movement in categories between the present and past preference. The overall movement is less than for interest category, largely due to the very high percentages of students aspiring to professional-level jobs. Quite apart from whether there is movement between categories these data provide a message to school counsellors and careers teachers. In Australia the percentage of all jobs occupied at the professional level is around 15. Students such as those in this study need to become more aware of realities.

Finally Part C of Table 1 shows the distributions of changes in 'sex balance category' of present and immediately past preferred occupation. Coding of this variable was very time-consuming and, because of limited resources, was done only for the Year 9 students (i.e. for the longitudinal sample). The data are displayed separately by sex, given the presumed relevance of this variable to the distributions of sex balance. The table shows obvious differences between males and females. Of the males, only quite small numbers moved away from male-dominated occupations, and only 4 of the 40 who had preferred a female-dominated job continued to do so. Of the females, 260 had preferred a male-dominated job and 114 continued to do so. Of 415 who had preferred a female-dominated job, 80 changed their preference to a male-dominated one.

Table 1a, 1b, 1c about here

Reasons for changes in preferred occupation — rank ordering

Reasons for changes in preferred occupation were sought in the School, Work and Career questionnaire and hence were provided by about 6000 students in Years 9, 10 and 11. Students were provided with a list of possible reasons for changes in preferred occupation (see Appendix), which they rated on a four-point scale of degree of

importance in relation to their present preference compared with their immediately previous preference. Space was provided for additional reasons to be written in, but these were rarely stated. The students were also asked to indicate the most important of the reasons for them. The question was not asked again in the same structured way in the longitudinal study, hence differences according to age can be studied only cross-sectionally.

An abbreviated list of the reasons is contained in Table 2, which shows the means by gender within grade and the significance levels of differences assessed by separate t-tests. Generally, males were more likely than females to state extrinsic reasons such as pay, security and travel, and to be more influenced by teachers, parents and friends — at least during Years 9 and 10. Female students in Years 10 and 11 were more likely to have been influenced by work experience placements or careers lessons while females at all grade levels were more responsive to following their interests and/or abilities. The male students rated their backgrounds as a significantly more important reason for their changed preference than did the females, who also ranked their gender as less important than did the males in Years 9 and 10.

Table 2 about here

A better picture of the interplay of gender and age (the latter reflected in the grade, or Year level, variable) was obtained through two-way analyses of variance. In all cases grade was highly significant, and gender was significant on all but hours of work and perceived lack of ability to get enough education. The directions of gender differences were similar to those discussed above. For Year level, Scheffé tests showed that Year 11 students rated most of the reasons as of lesser importance that did the Year 9 and Year 10 students. Exceptions were 'influence of teacher' and 'work experience or careers lessons', rated as significantly more important as reasons for changes in preferred occupation by the Year 10 students than by either the Year 9 or Year 11 students. A significant interaction effect was observed for the 'work experience/careers lesson' variable. Means by Year level and gender on this variable are shown in Table 3. Given that Year 10 is the most common time for students to undertake work experience placements and many schools, at least at the time the study was done, first introduce the students to a formal career education program at this level also, this interaction effect could have been anticipated. No doubt its occurrence will please those responsible for career and work education programs in our schools.

Table 3 about here

Tests of differences in the importance of reasons for changed preferences were carried out for the students grouped according to several other criteria. Lower achieving students, as gauged by the *Test of Reading Comprehension* (TORCH; Mossenson, Hill and Masters, 1987) and lower 'internality of control' groups as assessed by a five-item scale rated all reasons except 'interest in school subjects' as significantly more important ($p < .001$) than the corresponding higher groups. A similar result occurred when the students were grouped according to level of vocational indecision, with the less decided students assigning a higher level of importance to all reasons but work experience/career education. All the reasons were rated as of significantly higher importance by students from lower versus higher socioeconomic backgrounds and by students with fathers born in non-English speaking versus English speaking countries.

An overly simplistic (and possibly inaccurate) picture results from testing for significant differences for each independent student variable separately. Results of the combined gender by Year level analysis have already been discussed. The socioeconomic and ethnic background variables are often quite closely inter-related, as are SES and verbal achievement. For the longitudinal study group (Year 9 students) a three-way analysis of variance was carried out for each reason with 'Family SES' (the higher of father's and mother's jobs), father's category of English/non-English speaking background, and Reading Comprehension score. All main effects were significant at the .001 level or beyond. For these students, in addition to the significant effects across the board (except for interest in school subjects) for reading comprehension as discussed above, there were significant effects for SES on the work experience/career lessons and 'unsuitability of gender' reasons. For father's ethnicity, 'interest in school subjects', 'suitability of interests' and 'influence of parents' showed strongly significant differences, while several other reasons were different at the .05 level of significance.

It was intended that multivariate analyses of variance would be carried out with clusters of the possible reasons for changed preferred occupation. Most of the 15 reasons grouped logically in categories as 'significant others' (parents, teachers, friends); extrinsic aspects of the job (poor prospects, few jobs, pay & security poor, too much travel, long work hours); 'personal characteristics–psychological' (interests, abilities) and 'personal characteristics–background' (gender, status). Whether these clusters were defensible from the data was first checked with a series of factor analyses. There was some evidence for the 'significant others' cluster and for the 'extrinsic to job' cluster, but the solution did not clearly yield the expected clusters, indicating that multivariate analyses of the hypothesised groups of reasons would not be a meaningful procedure.

Reasons for changes in preferred occupation — most important

The percentages of males and females in the cross-sectional sample naming the reasons as most important in determining their changed preferred occupation are shown in Table 4. These, of course, reveal the same pattern of gender and age differences in levels of importance as already discussed, but the similarity of the rank orderings of importance despite the actual levels of endorsement can more clearly be seen. Rank order correlations by subgroups for the sets of reasons, based on item means, were all high, in the range .90 to .95, no matter what the group, showing highly stable perceptions of the relative importance of the factors as determining change in preferred occupation.

Table 4 about here

Apart from the gender and age variables already discussed, an interesting perspective on the kinds of students who specify their most important reason for changing their preferred occupation is provided in Table 5. The data analysed for this table are from the cross-sectional file. From the 15 reasons provided for the students to rate, the four most important from the point of view of Gottfredson's theory have been selected — namely, Gender, Background (status), Abilities and Interests. These were operationalised as the 13th, 7th, 5th and 8th items in the list of reasons shown in the Appendix.

One-way ANOVAs were done for the four groups on a range of other psychological variables (not all were measured at all grade levels, however). These included self esteem, self-rating of overall achievement, attitudes to aspects of school life, reading comprehension, mathematics score, SES of preferred occupation, locus of control, career salience, career development and vocational indecision. Only those for which a significant overall *F* was found are shown in the table.

Table 5 about here

The background and gender groups are of special interest here. Firstly, they are much smaller than the other groups. The background group is different from the others only in reading comprehension, mathematics achievement and locus of control, scoring lower than several of the other groups on these measures ('background' could have been interpreted by the respondents in terms of SES, ethnicity or perhaps a combination of both of these). This group does, however contain a lower percentage of students from English-speaking backgrounds. It also contains a substantially higher proportion of girls than the other groups in the table (almost 70 per cent compared with 40 to 50 per cent). The gender group is of more concern, being lower in self esteem,

mathematics achievement, internality of control and career salience (relative importance of work compared with other life roles) and highest in vocational indecision. This group contains more girls than the other groups, though by a small margin in most cases.

In these two sections of the paper, reasons given by the students in the cross-sectional file for changes in preferred occupation from the immediately preceding preference have been discussed. Most of the reasons have potential barriers to career choice underlying them. The next sections draw on data from the longitudinal component of the study to probe perceptions of barriers, and changes in these perceptions over time, more directly.

Perceived barriers to gaining the preferred occupation

From Year 10 onwards, the students were asked to comment on circumstances or factors which they believed might impede them in obtaining their present preferred occupation. The following question was asked: 'If it turns out to be difficult for you to get into that occupation [i.e. their current preference], what do you think will be the main thing(s) stopping you? (*List the most important one first.*)' Limited resources dictated that only the first reason given was coded. The reasons were content analysed and were found to fit mostly into 9 categories, as displayed in Table 6. This table shows the distributions of responses separately for the Year 10 and Year 11 groups, both totally and for higher and lower scorers on the TORCH test separately. Perceptions of factors related to own school progress clearly led the field, with concern about school performance becoming more important in Year 11 than in Year 10. The higher ability students were less concerned than the lower group about the adequacy of their own abilities but more concerned that lack of suitable jobs in the job market would prevent them from achieving their occupational goals. They were also a little more concerned than the lower group about the adequacy of their school performance, probably through having higher aspirations and realising that they would need to do well in the competitive race for higher education places.

Table 6 about here

As with the variables featured in Table 1, there was often more movement than stability over time in factors perceived as barriers to gaining one's preferred occupation. A cross-tabulation of perceived barriers in Year 10 and in Year 11, as presented in Table 7, shows that concern about school performance as a barrier was by far the most stable concern over this time period. In the overlapping Year 10/Year 11 group, 88 students said in Year 10 that 'nothing would stop' them in gaining their preference. In the Year 10 group as a whole, over 200 students, many of whom said they intended to leave

school at the end of that year, responded in this way. For those who left, it could be that their aspirations were low enough that they could expect to obtain their preferred jobs (though this is unlikely, given the current state of the labour market for early school leavers). Of the 88 Year 10 'non-compromisers' in the longitudinal group, only 12 claimed in Year 11 that nothing would stop them achieving their preferred occupation. Thus it seems that 'non-compromise' as a strategy, as proposed by Taylor and Pryor (1985), may be a very unstable tendency.

Table 7 about here

Compromise factors

To answer questions like 'Who compromises?' and 'In what way(s) do they compromise?' one would need to follow through the actual preferred occupations from year to year. So far, in the present study, this procedure has been followed for the small interview sample of 80 students only. (The data were collected for all students in the longitudinal sample, but have been looked at only in a group way to date.) Of those who reached Year 12, about half had down-graded the status of their preferred occupation. A small number had raised it after becoming aware of wider possibilities. As one boy said in his interview, 'I've started to realise this year that I'm doing well enough in my school work to do more than work for my father, so I now want to do something different' (his preference had changed from carpenter to accountant). About another third had compromised on both status and interest field, with a few seeming to compromise on all three 'Gottfredson factors' of status, interest field and gender balance of occupation. It was rare for a student to compromise on interest field alone.

For the students in Years 9, 10 and 11, in both the cross-sectional and longitudinal samples, the percentages whose preferred occupations remained in the same status, interest or sex balance category over time are presented in Table 8. (In the cross-sectional sample the data were collected retrospectively, and apply only to current and immediately preceding preferred occupation.) This table is particularly interesting in that it appears, at least for the Year 9 and Year 10 groups, to support Gottfredson's hypothesis about the order in which compromises are made -- interest fields first, status second, gender considerations last. The Year 9 part of the table shows that status concerns are about the same for males and females at this level, but that females are much more likely than males to compromise on sex balance of occupations and somewhat more likely to compromise on interest field. Sex balance, unfortunately, has not yet been coded for the Year 10 and Year 11 groups. There appears to be a steady trend by Year level for both status and interest field to become less likely bases for compromise, with interest field gaining more than status in stability.

Table 8 about here

Preference patterns over time of students in first-year post-school courses

Finally, an attempt was made to glean information on compromises by identifying the students who entered a range of post-school courses in the fifth year of the project and tracing back through their questionnaires to see how their intentions for future field of study had remained stable or changed. Slightly more than half of the 870 or so respondents who had entered a post-school course were in universities; most of the remainder were in Technical and Further Education colleges. The data presented in Table 9 show some dramatic attrition rates, though these would not always have been because the students changed preferences. Some would have left school, particularly between Years 10 and 11, while others would have been absent from school on the days the questionnaires were given. The right-most set of data, starting from Year 10 as the base, reflect changes in anticipated field of study between Years 9 and 10 and also differences in the absentee groups on the two occasions when the questionnaires were administered. Comments on each post-school course featured in Table 9 follow.

Table 9 about here

Art and Design Of the 30 students in Art & Design courses, 19 had indicated this as their intention in Year 12. Others had indicated Education (4) and a smattering of other courses including Law, Science, Arts and Social Science. One or two had wanted to study Medicine prior to Year 11. The self-rated school achievement of these 30 students was usually 3 or 4 on a 5-point scale. Perceived barriers to being able to enter their preferred occupation were that their own abilities might be unsuitable, lack of available jobs and lack of money — rarely school performance. This group contained two of our 12 stable 'non-compromisers', in this case who had actually managed to enter their preferred course.

Education Half of the students studying a post-school Education course had indicated their intention to do this by Year 12. Others had intended Science (4), Art & Design (3), Business (3) and a range of other courses, usually in the humanities area. Several had wanted Science prior to Year 11, one had wanted Law. Their self-rated achievement was similar to the Art & Design students', and their main perceived barriers were the job market and their school performance about equally. Only two students were worried that their abilities might not be suitable.

Engineering To date, only the females who entered post-school Engineering courses have been looked at. This group proved to be one showing very little stability in their intentions for future study program. Only two of the 17 in the group had wanted

Engineering by Year 12, and only one had actually wanted this course all the way through from Year 9. Others had wanted Science (4) and a pot pourri of other courses including Law and several humanities-related areas. Prior to Year 11 they had wanted an even wider range of programs, including Medicine and Performing Arts. As a group, their self-rated school achievement was high to very high, and their anticipated barriers were usually school performance or concern about the suitability of their abilities. In considering this group, one has a strong urge to find out how many of them persisted with their Engineering courses, and how well they did!

Law Five of the nine students studying Law at university wanted to do so by Year 12, with four of the five also desiring this course by Year 11. Others had wanted Medicine, Social Science, Arts and Science. Their self-rated achievement was very high, but most were concerned that their school performance might nevertheless be a barrier. Other perceived constraints for some of these students were lack of money and lack of available jobs.

Medicine Both students wanted this course by Year 12, but prior to that one intended to study Law, the other Science. They rated their school achievement as very high, but were still concerned that it might be a barrier to attaining their goal.

Nursing This course was included here because it was thought that some 'Medicine compromisers' might be found in it. In fact, none of the group's Year 12 intentions were to study Medicine, though several of them had intended it at an earlier stage. Only five actually wanted Nursing in Year 12. Equally commonly they had intended paramedical or Science courses, with some intending Social Science (3) and others intending a range from Performing Arts to Police Studies. This group were not as confident in rating their school achievement, assigning ratings from 2 to 4. Unsuited abilities and inadequate school performance were the most commonly mentioned barriers, with one or two students also concerned about lack of money or lack of jobs. Of the five students who changed their intentions from Medicine to Nursing or something else at Year 12, all saw their school performance or abilities as constraints in achieving their goals.

Science As for Engineering, only the responses for females in this group have as yet been examined. As a group these females are quite a contrast to the female Engineering group. Overall, they are probably the most stable of all the above groups in the patterns of their preferences from Year 9 onwards. Thirty-five of the 60 females studying post-school Science had intended to do so by Year 12, and 21 of these also had this as their intention by Year 11. Others had intended Business courses by Year 12 (8), a few had intended paramedical or Nursing courses, and the remainder had a range of intentions including Arts, Education, Agriculture or Engineering. Only three had

moved from Medicine to Science between Year 11 and Year 12, but several others in this group had compromised away from Medicine, Dentistry or Veterinary Science prior to Year 11. The self-ratings of achievement assigned by these girls were most commonly 4 on the 4-point scale. Their perceived barriers were usually school performance, sometimes their own abilities. This group displayed more concern about lack of available jobs than any other group except those studying Education courses.

Conclusion

This extensive study, which began with over 3000 students in Year 9 and followed them over five years until almost all had left school, used a range of ways of probing compromises the students made in their occupational plans as they progressed through school and into the world beyond it. As Gottfredson herself commented in her original article about circumscription and compromise, there is no easy or fully satisfactory way to study such complex processes. The factors she proposed as the main elements of circumscribing and compromising in occupational choice — psychological factors such as abilities and interests, sociological factors such as background and gender-stereotyping — are all inter-related and virtually impossible to isolate in any research design.

The present study used the 'natural laboratory' approach of selecting a wide-ranging and large sample of students, following them over several years at a stage in their lives when crucial decisions with impact on their occupational futures needed to be made. The main design elements were in the selection of variables to examine, the instruments developed to assess these variables, and the range of strategies and data sources used in the data collection. (The only attempt at 'control' was in the selection of the students to be interviewed, who were chosen on the basis of strongly stereotyped or non-traditional preferences indicated in Year 9.)

Despite the methodological problems, some conclusions from all the probing seem to be justified:

- High school students, at least in Australia, more often than not display considerable instability in their preferred occupations and intended courses of study over the period from Year 9 to Year 12 when they need to make crucial decisions with impact on their future lives.
- The end-of-high-school statewide examinations in New South Wales, which contribute substantially to whether students attain their preferences for future study in post-school institutions, weigh heavily on students' minds, and are perceived by far as the greatest potential barrier to achieving occupational goals

(the same would most likely be true in any other system where such examinations are in place).

- Despite career education programs, work experience placements and so on, there are still distressing numbers of students who seem to be disregarding reality factors in expressing their occupational preferences (45% in this study aspired to professional level jobs, when the proportion of such jobs in Australian society is much lower). The schools in this study were not selective schools, from which a higher than average percentage of students could be expected to enter professional jobs. Rather, they were comprehensive schools which catered for all kinds of students. This kind of result, which has commonly occurred in many other studies across many countries, poses a dilemma for school staff. One does not want to dash students' hopes and kill off aspirations entirely, yet one also does not want to see students struggling to achieve something they have very little chance of attaining. It certainly suggests that now is not an appropriate time to be cutting back on resources for career education and career guidance programs in schools, which is currently happening in many parts of Australia.
- There is some evidence, at least for students in this age span, for the hierarchy of compromise factors as proposed by Gottfredson. This evidence arises from the stability or otherwise over time in the status, sex balance and interest category of the students' expressed preferred occupation in each of Years 9 to 11. Moves in sex-balance category of occupation and in interest category can be regarded as compromises made. For status, 'compromise' has a connotation of lowering one's aspirations. Thus all moves made on status grounds will not necessarily indicate compromise — sometimes, they will indicate expanded horizons. Evidence from this study, though, suggests that lowering the status of one's preferences over time is probably ten times more likely than raising it.
- By Year 11, the gap in the hierarchy of compromise factors operating has lessened in comparison with Year 9. Further work is needed to see what happens beyond Year 11 (approximately age 16). Also, further work on sex balance of preferred occupations, which was available only for the younger students in this study, is needed.

A limitation of this study is its reliance on many self-report measures. However, the aspect in which post-school study destinations were used as a starting point for some retrospective tracing bases at least some of the work in actuality. Probably the main contributions lie in the comprehensiveness of the variables studied and in the longitudinal nature of the investigation.

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APPENDIX

I Sources of questionnaire items

II Items used to probe reasons for changes in preferred occupations

I Item sources

Interests	18 items plus the self-rating sections of the Australian *Self-Directed Search* were used, with the permission of Psychological Assessment Resources which holds the copyright
Career development	13 items from the Australian *Career Development Inventory* were used (copyright held by ACER*)
Vocational indecision	3 items from *My Vocational Situation* were used, with permission from and a royalty paid to Consulting Psychologists Press. These items were supplemented by others from K Taylor's unpublished Work Quiz, with his permission
Career salience	4 items from the Australian version of the Work Importance Study (Super et al.) instruments were used (copyright held by ACER)
Locus of control	The 3 items originally used by Coleman in 1966 were used, supplemented by other items which have been used in ACER research studies over many years
Self esteem	Coopersmith *Self Esteem Inventory*, short form
Study processes	Biggs' *Study Process Inventory*, published by ACER
Attitudes to school	*School Life Questionnaire*, published by ACER

* ACER: The Australian Council for Educational Research Ltd
19 Prospect Hill Road, Camberwell, Victoria, Australia 3124.

II Items used to probe reasons for changes in preferred occupations follows over the page.

6(a) Here are some reasons that people sometimes give for changing their ideas about the occupation they most want to do. When you changed your preference from the occupation you wrote on line 2 of Question 5 to your present preference (on line 1 of Question 5), how important was each reason in your own decision?

	(Tick one box in each line)			
	Very Important	Fairly Important	Slightly Important	Not at all Importar
My present preference is more related to my favourite school subjects.	☐	☐	☐	☐
I found out that my earlier preference did not offer good prospects for advancement.	☐	☐	☐	☐
I found out about the occupation I now prefer from work experience or careers lessons.	☐	☐	☐	☐
There were too few jobs available in the occupation I changed from.	☐	☐	☐	☐
My abilities would not have suited that occupation.	☐	☐	☐	☐
The pay and job security would not have been good enough.	☐	☐	☐	☐
Very few people with my background go into that occupation.	☐	☐	☐	☐
The occupation would not have suited my interests.	☐	☐	☐	☐
My teachers thought the occupation would not suit me.	☐	☐	☐	☐
My parents thought the occupation would not suit me.	☐	☐	☐	☐
My friends thought my earlier preference would not suit me.	☐	☐	☐	☐
I would not have been able to get the right kind of education to go into the occupation.	☐	☐	☐	☐
People of my sex don't usually go into that kind of work.	☐	☐	☐	☐
I would have had to travel too far to get work.	☐	☐	☐	☐
I discovered that my earlier preference would have long hours and a lot of responsibility.	☐	☐	☐	☐

Other reason: (write in) _____

6(b) Please underline the reason above that was most important to you.

Table 1 Interests, Status and Sex Balance of Present and Immediately Past Preferred Occupation

PART A Interests

	Present							
Past	R	I	A	S	E	C	*N*	%
R	1209	267	166	348	103	177	2270	37.8
I	196	349	83	143	74	79	924	15.4
A	157	60	213	120	44	68	662	11.0
S	298	152	147	387	78	149	1211	20.2
E	96	67	57	60	53	56	389	6.5
C	134	65	40	134	55	114	542	9.0
N	2090	960	706	1192	407	643	5998	99.9
%	34.8	16.0	11.8	19.9	6.8	10.7	100.0	

PART B Status

	Present							
Past	1 (lo)	2	3	4	5	6 (hi)	*N*	%
1	263	19	96	237	36	368	1019	16.6
2	33	12	52	33	4	28	162	2.6
3	85	21	482	145	22	210	965	15.7
4	178	23	129	279	56	400	1065	17.4
5	20	3	17	31	18	96	185	3.0
6	264	17	121	352	104	1872	2730	44.6
N	843	95	897	1078	240	2974	6127	99.9
%	13..8	1.6	14.6	17.6	3.9	48.5	100.0	

PART C Sex Balance

Present	Males				Females			
Past	fem	neut	masc	%	fem	neut	masc	%
fem	4	12	24	3.9	233	102	80	45.5
neut	4	29	71	10.2	96	70	71	26.0
masc	25	90	758	85.9	89	57	114	28.5
N	33	131	853		418	229	265	
%	3.2	12.9	83.9		45.8	25.1	29.1	

Table 2 Mean Ratings# on Reasons for Change in Preferred Occupation, Gender within Year Level, Cross-sectional Sample

	Year 9		Year 10		Year 11	
Reason for change	Males	Females	Males	Females	Males	Females
Favourite school subjects	2.75***	2.57	2.73**	2.61	2.59	2.53
Poor advancement	2.26	2.22	2.31**	2.20	2.08	2.08
Work exp/careers lessons	2.33	2.28	2.67	2.79**	2.33	2.52**
Too few jobs available	2.03	2.09	2.12	2.17	1.93	1.99
Unsuitable abilities	2.22	2.37***	2.22	2.35**	2.03	2.15*
Poor pay and security	2.31*	2.21	2.24	2.17	2.08**	1.90
Wrong background	1.84***	1.62	1.82***	1.55	1.52**	1.37
Unsuitable interests	2.23	2.39***	2.29	2.44***	2.21	2.12
Teacher influence	1.50***	1.40	1.56***	1.44	1.40	1.39
Parent influence	1.82**	1.70	1.80**	1.68	1.61	1.59
Friends influence	1.55***	1.44	1.53**	1.44	1.34	1.31
Couldn't get education	2.22	2.25	2.12	2.22*	1.94	1.93
Wrong sex	1.50***	1.37	1.47**	1.36	1.24	1.23
Travel too far	1.75	1.69	1.75*	1.67	1.47	1.42
Long hours/responsib.	2.10	2.06	2.04*	1.94	1.66	1.70

Standard deviations ranged from 0.7 to 1.15; most were in the range 0.8 to 0.95.

* Significant at $p < .05$
** Significant at $p < .01$
*** Significant at $p < .001$

Table 3 Mean Ratings by Gender within Year Level on Influence of Work Experience/Careers Lessons

	Year 9	Year 10	Year 11
Male	2.33	2.67	2.33
Female	2.27	2.78	2.53

Table 4 Percentage by Year Level and Gender for each Reason Named as Most Important

	Year 9		Year 10		Year 11	
Reason*	Male	Female	Male	Female	Male	Female
N	1049	1053	896	984	452	527
Favourite school subjects	25.7	17.9	21.3	18.6	21.2	21.8
Unsuitable interests	10.5	15.4	11.2	16.4	17.0	13.5
Unsuitable abilities	9.2	13.3	9.5	9.7	8.6	10.6
Poor pay & security	10.8	9.3	10.8	5.6	10.0	4.7
Work exp/careers lessons	6.3	9.1	17.4	21.3	15.9	23.3
Long hours/responsib.	6.8	6.4	4.3	4.1	2.0	3.4
Couldn't get education	5.7	6.3	5.0	4.5	5.7	4.7
Too few jobs available	4.8	6.2	5.6	7.8	5.3	8.0
Parent influence	6.3	4.0	2.5	2.5	3.1	2.6
Poor advancement	5.1	4.6	5.8	4.9	5.8	5.1
Travel too far	1.7	1.7	2.1	1.6	1.1	0.8
Wrong background	2.0	1.1	2.1	1.0	2.2	0.4
Wrong sex	1.2	1.9	1.2	1.4	0.7	1.3
Friends influence	0.7	0.8	0.6	0.2	0.4	0.2
Teacher influence	0.7	0.7	0.6	0.4	0.9	0.0

* Listed in descending order of combined percentage at Year 9

Table 5 Percentage or Mean and Standard Deviation on Selected Variables* for Groups based on Most Important Reason for Change in Preferred Occupation

	Abilities	Interests	Background	Gender
N	512	681	74	68
% Year 9	46	40	45	49
% Year 10	35	38	39	37
% Year 11	19	22	16	15
% male	43	42	68	40
% high SES	46	45	29	40
% Eg bkgr	65	65	60	76
% intend post-sec.	78	81	62	70
% Realistic	30	29	49	33
% Investigative	16	17	14	14
% Artistic	12	13	6	14
% Social	22	23	14	21
% Enterprising	7	7	6	8
% Conventional	13	11	11	10
Self esteem	17.6 (5.5)	17.8 (5.2)	17.0 (4.8)	15.9 (5.6)
Reading	65.2 (9.1)	67.6 (10.7)	55.0 (11.9)	60.6 (11.7)
Maths	25.0 (9.6)	25.6 (10.1)	17.5 (7.8)	18.8 (8.5)
Locus of control#	16.0 (2.2)	16.4 (2.1)	15.3 (2.7)	14.8 (2.5)
Career salience	12.9 (1.7)	12.9 (1.7)	12.6 (2.1)	12.1 (1.9)
Voc'l indecision##	8.2 (1.9)	8.4 (1.9)	8.0 (1.8)	7.6 (1.6)

* Means and SDs are shown only for variables for which the overall F was significant and Scheffé tests indicated that at least two groups were significantly different.

\# Higher scores indicate higher internality.

\## Higher scores indicate more decidedness.

Table 6 Percentages of Students by Perceived Barrier to Obtaining Preferred Occupation

			Year 10		Year 11	
	Year 10	Year 11	Low Rdg	High Rdg	Low Rdg	High Rdg
Barrier	*N* = 2072	*N* = 1315	*N* = 1021	*N* = 1051	*N* = 530	*N* = 785
Nothing	7.0	3.4	8.6	5.4	3.6	3.3
Self factors						
Sch performance	41.1	49.9	39.3	42.9	48.7	50.7
Unsuited abilities	15.6	16.0	18.4	12.9	19.0	13.9
Lost interest	2.6	2.7	2.4	2.8	2.1	3.1
External factors						
Job market	26.6	21.1	24.9	28.4	18.1	23.1
Location	0.7	0.6	0.8	0.7	0.8	0.5
Money	2.8	3.5	2.0	3.5	3.8	3.3
Influence	1.1	0.5	1.6	0.7	1.3	0.5
Subject range	0.8	0.5	0.5	1.0	0.8	0.3
Other	1.6	1.6	1.6	1.7	1.9	1.4
Total	99.9	99.8	100.1	100.0	100.1	100.1

Table 7 Stability and Change in Perceptions of Barriers to Obtaining Preferred Occupation, Year 10 to Year 11

	Barriers Year 11											
Barriers Year 10	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	*N*	%
1 Nothing	**12**	23	19	4	19	-	5	4	-	2	88	5.8
2 Sch performance	15	**434**	95	13	85	1	9	7	4	10	673	44.7
3 Abilities	10	113	**58**	7	29	2	7	-	1	5	232	15.4
4 Interests	1	15	10	**4**	9	-	3	-	-	1	43	2.9
5 Job market	14	135	42	8	**137**	3	10	1	2	3	355	23.6
6 Location	-	3	-	-	6	-	1	-	-	-	10	0.7
7 Money	4	14	9	-	7	3	**12**	-	-	4	53	3.5
8 Influence	-	4	3	-	3	-	2	**4**	-	-	16	1.1
9 Subject range	-	5	2	-	4	-	2	-	-	-	13	0.9
10 Other	-	8	4	-	6	1	1	-	-	**2**	22	0.5
N	56	754	242	36	305	10	52	16	7	27	1505	100.1
%	3.7	50.1	16.1	2.4	20.3	0.7	3.5	1.1	0.5	1.8	100.0	

Table 8 Percentage of Respondents with Current and Immediate Past Preferred Occupation in the Same Category on Compromise Factors

	Total	Male	Female
Cross-sectional			
Status	47.4	49.0	46.5
Interests	38.8	47.4	30.1
Longitudinal			
At Year 9			
Sex balance	62.6	77.8	45.7
Status	44.8	45.7	43.9
Interests	36.9	46.3	27.4
At Year 10			
Status	62.8	63.3	62.4
Interests	58.5	62.3	54.5
At Year 11			
Status	69.6	67.0	72.2
Interests	64.6	63.4	65.7

Table 9 Details of Students Intending and Entering Higher Education Courses

Numbers	Year 9 as base				Year 10 as base			Actual '91
Art/Design	133	43	18	12	121	34	19	30
% male	38	35	28		38	32		
% Eng bkgr	66	64	72		70	69		
% High SES	64	61	62		58	53		
% High Rdg	54	61	71		60	65		
Education	181	64	38	19	146	70	31	32
% male	22	13	11		14	10		
% Eng bkgr	74	73	71		74	74		
% High SES	63	65	67		67	71		
% High Rdg	62	71	86		61	75		
Engineering	228	91	22	11	320	59	23	126
% male	93	99	96		93	93		
% Eng bkgr	54	52	23		61	41		
% High SES	45	43	30		50	46		
% High Rdg	44	45	63		42	55		
Law	67	20	11	3	69	28	9	9
% male	40	35	36		38	43		
% Eng bkgr	53	50	55		51	50		
% High SES	62	76	77		72	67		
% High Rdg	77	93	68		77	79		
Medicine	66	25	16	1	53	28	2	2
% male	44	44	50		51	54		
% Eng bkgr	47	36	31		40	42		
% High SES	53	64	61		70	54		
% High Rdg	69	79	73		68	71		
Nursing	39	9	3	1	41	11	5	28
% male	8	0	0		2	0		
% Eng bkgr	87	78	67		84	78		
% High SES	46	29	33		55	88		
% High Rdg	55	63	33		52	50		
Science	277	102	47	31	325	120	65	130
% male	63	67	57		59	55		
% Eng bkgr	46	44	47		53	57		
% High SES	62	70	71		67	72		
% High Rdg	55	59	67		64	76		